CLAIMS

What is claimed is:

1. A method for producing a vaso-occlusive element comprising the step of injection molding a polymeric material into the three-dimensional configuration.

2. The method of claim 1, wherein the polymeric material is absorbable.

3. The method of claim 2, wherein the absorbable material is selected from the group consisting of polyglycolide, poly-L-lactide, poly(g-ethyl glutamates, polyphosphazene, polysaccharides, polyorthoesters, polycaprolactone, polyhydroxybutyrate, polydioxanone, polycarbonates, polyanhydrides, copolymers or blends thereof, collagen, elastin, fibrinogen, fibronectin, vitronectin, laminin, gelatin and combinations thereof.

4. The method of claim 1, wherein the three-dimensional configuration comprises a cylindrical configuration having a longitudinal axis.

5. The method of claim 4, wherein the cylindrical configuration further includes a plurality of channels therein.

6. The method of claim 5, wherein the channels are perpendicular to the longitudinal axis of the device.

7. The method of claim 1, wherein the three-dimensional configuration comprises a plurality of shaped structures linked in series.

8. The method of claim 7, wherein the shaped elements are ovoid.

9. The method of claim 7, wherein the shaped elements are spherical.

10. The method of claim 7, wherein the shaped elements are conical or pyramidal.

11. The method of claim 7, wherein the three-dimensional configuration is a single-molded element.

12. The method of claim 7, wherein the three-dimensional configuration is formed from two or more separate elements.

13. The method of claim 7, wherein the linking elements comprise a polymeric wire or a ductile metallic wire.

14. The method of claim 1, further comprising the step of providing one or more severable junctions detachably connected to a pusher element.

15. The method of claim 14, wherein the severable junction comprises an electrolytically detachable assembly adapted to detach by imposition of a current on said pusher element.

16. The method of claim 14, wherein the severable junction comprises a mechanically detachable assembly adapted to detach by movement or pressure imposed on or within said pusher element.

17. The method of claim 14, wherein the severable junction comprises a thermally detachable assembly adapted to detach by localized delivery of heat to said junction.

18. The method of claim 14, wherein the severable junction comprises a radiation detachable assembly adapted to detach by delivery of electromagnetic radiation to said junction.

19. The method of claim 1, further comprising micro-machining the injection-molded element.

20. The method of claim 1, further comprising chemically etching the injection-molded element.

21. The method of claim 1, further comprising laser cutting the injection-molded element.

22. The method of claim 1, further comprising linking a plurality of the injection-molded elements.

23. The method of claim 22, wherein the linking is by a method selected from the group consisting of soldering, interference fitting, friction fitting, stringing, ultrasonic welding, thermal welding and solvent bonding.

24. The method of claim 1, further comprising the step of blending one or more radio-opaque materials with the polymer.

25. The method of claim 1, wherein the injection molding comprises insert molding a metallic wire within the three-dimensional configuration.

26. A vaso-occlusive device produced by the method of claim 1.

27. A vaso-occlusive device comprising at least one polymeric material, wherein said device is formed into and deployed in a three-dimensional configuration.

28. The vaso-occlusive device of claim 27, wherein the vaso-occlusive device comprises at least one absorbable or biodegradable polymer.

29. The device of claim 28, wherein the absorbable material is selected from the group consisting of polyglycolide, poly-L-lactide, poly(g-ethyl glutamates, polyphosphazene, polysaccharides, polyorthoesters, polycaprolactone, polyhydroxybutyrate, polydioxanone, polycarbonates, polyanhydrides, copolymers or blends thereof, collagen, elastin, fibrinogen, fibronectin, vitronectin, laminin, gelatin and combinations thereof..

30. The device of claim 27, wherein the three-dimensional configuration comprises a cylindrical configuration having a longitudinal axis.

31. The device of claim 30, wherein the cylindrical configuration further includes a plurality of channels therein.

32. The device of claim 31, wherein the channels are perpendicular to the longitudinal axis of the device.

33. The device of claim 27, wherein the three-dimensional configuration comprises a plurality of shaped structures linked in series.

34. The device of claim 33, wherein the shaped elements are ovoid.

35. The device of claim 33, wherein the shaped elements are spherical.

36. The device of claim 33, wherein the shaped elements are conical or pyramidal.

37. The device of claim 33, wherein the three-dimensional configuration is a single-molded element.

38. The device of claim 33, wherein the three-dimensional configuration is formed from two or more separate elements.

39. The device of claim 33, wherein the linking elements comprise a polymeric wire or a ductile metallic wire.

40. The device of claim 27, further comprising the step of providing severable junction detachably connected to a pusher element.

41. The device of claim 40, wherein the severable junction comprises an electrolytically detachable assembly adapted to detach by imposition of a current on said pusher element.

42. The device of claim 40, wherein the severable junction comprises a mechanically detachable assembly adapted to detach by movement or pressure imposed on or within said pusher element.

43. The device of claim 40, wherein the severable junction comprises a thermally detachable assembly adapted to detach by localized delivery of heat to said junction.

44. The device of claim 40, wherein the severable junction comprises a radiation detachable assembly adapted to detach by delivery of electromagnetic radiation to said junction.

45. The device of claim 27, further comprising a radio-opaque material.

46. The device of claim 45, where the radio-opaque material is selected from the group consisting of tantalum, tantalum oxide, tungsten, bismuth oxide, barium sulfate, platinum, and gold.

47. The device of claim 27, further comprising a bioactive material.

48. The device of claim 27, produced by injection molding.

49. The device of claim 48, wherein the device is micro-machined.